Mobile Data Network

Product Summary

The Mobile Data Network is a data communications solution that enables users to run business applications from laptops mounted in equipped vehicles—doing business in a real-time, mobile environment.

The Mobile Data Network provides wireless data communications on a licensed frequency spectrum over private State communications infrastructure. The Mobile Data Network is overlaid onto the State Microwave system and State Wide Area Network—with the capability to provide data communications coverage throughout the state.

The Mobile Data Network connects, transports, and manages data traffic between mobile units in vehicles, long-range radios at communication sites, the State Wide Area Network, and the Mobile Data Network Controller.

Users can roam the Mobile Data Network coverage area while continuously operating business applications.

Product Features

Mobile Data Network Features	
Feature	**Description**
Mobile data technology	▪ *IP*MobileNet, Inc. system. ▪ Open architecture incorporating end-to-end native Internet Protocol (IP). ▪ Low bit error rate (BER) allows *IP*MobileNet to have low forward error correction (FEC) overhead compared to other technologies. ▪ State-of-the-art digital signal processing technology, allowing upgrades to higher data rates through advanced modulation techniques.
Data rate	▪ 33Kbps, less overhead. ▪ *IP*MobileNet product roadmap to higher data speeds.
Licensed frequency spectrum	▪ 700MHz ▪ Utilizes the 700MHz set aside by the FCC for Public Safety wireless operations.
Bandwidth	▪ 25KHz and 50KHz, in the same radio.
Signal reliability	▪ Very high message success rate, even while transferring large blocks of data. ▪ Second antenna provides for multi-path correction to improve signal reliability, reducing packet resends. ▪ A multi-layered approach to signal reliability through path diversity, data scrambling, data interleaving, forward error correction (FEC), and collision tolerant radio modems.
Communication site infrastructure	▪ Operational communication sites throughout the state.
Mobile data base stations	▪ Long-range radios and antennas. ▪ Patented *IP*MobileNet system with three independent high-performance, low-noise FM receivers.

Coverage	▪ Potential for statewide coverage based on State Microwave Communication Sites and the State Wide Area Network. ▪ On-line coverage map updated as the network is built out and expanded.
Mobile data network controller (IPNC)	▪ Routes and schedules data transmissions throughout the network. ▪ Bridges wired and wireless portions of the network. ▪ Routes messages to and from mobile users, handles bandwidth allocation, multi-access protocols, hand-offs, load leveling, synchronization and time slot allocation. ▪ Redundant controllers configured for failover at the State Office Building and the Richfield Data Center.
Coverage area interoperability	▪ End-to-end native Internet Protocol (IP) architecture that creates an interoperable data network. ▪ Uninterrupted connectivity as users roam between base station coverage areas.
Mobile unit configuration documentation	▪ Instructions for configuring mobile units for use on the Mobile Data Network.
Mobile unit registration	▪ On-line form to register mobile units for authorized access to the Mobile Data Network.
Mobile units – system component	▪ Mobile units must be purchased by the user agency, to be mounted in vehicles and connected to the Ethernet port for connectivity to the Mobile Data Network. ▪ *IP*MobileNet multi-patented, dual receiver, Intelligent Diversity Reception System™ unit. ▪ Compact and rugged. Low power consumption. High performance integrated GPS receiver. ▪ See **System Component** section below for ordering information.

Product Benefits

Mobile Data Network Benefits
A single shared Mobile Data Network—eliminating duplicated efforts and costs, and providing for mobile interoperability among users.
Improved communications across jurisdictions with interoperability. Users can travel outside their usual areas of responsibility and continue to operate data applications.
Private State communications infrastructure for reliable coverage statewide.
Capability for statewide coverage using existing private State communication sites, Microwave system, and Wide Area Network infrastructure—including rural areas not serviced by commercial entities.
Private data-only network. No priority contention with voice during emergency situations or other incidents.
Secured access via radio and network protocols.
Professionally managed network by ITS Network and Wireless experts.
Mobile units with integrated GPS receivers reduce the cost of acquiring GPS data from vehicles.
Vendor technology roadmap that includes a data speed migration path to 64Kbps, then 128Kbps via firmware upgrades.

Product roadmap in coordination with Utah Wireless Integrated Network (UWIN) consortium comprised of Local, State, Federal, and Homeland Defense Regional representation. UWIN web site: http://www.uwin.utah.gov/
Investment in Mobile Data Network base station infrastructure funded by Homeland Security grants.
ITS-maintained state contract with Mobile Data vendor. ITS assistance when ordering mobile unit equipment.
Successful, proven previous-generation system operational in several Utah areas.

Services Not Included with this Product

Services Not Included	
Service	**Explanation**
802.11 Wireless Network	▪ The 802.11 Wireless Network is a distinct network and product. Access web page: http://its.utah.gov/productsservices/productservices.htm ▪ Mobile Data Network users may use the 802.11 Wireless Network as a separate network connection. ▪ Mobile Data Network users may use the 802.11 Wireless Network via a network persistence solution that automatically switches to the most effective wireless network.
Network persistence solutions	▪ Network persistence solutions—to allow mobile workers to move between different wireless networks (e.g., Mobile Data Network and 802.11 Wireless Network) without losing connection or security, is not part of the Mobile Data Network. ▪ Network persistence solutions may be set up to operate in coordination with the Mobile Data Network. ▪ Three vendors that provide network persistence solutions are on state contract. ▪ ITS can work with customers to implement a network persistence solution.
GPS	▪ Mobile unit GPS tracking is considered a customer business application. ▪ GPS applications can run on the Mobile Data Network.

Related ITS Products

Related ITS Products	
Product	**Description**
Mobile unit installation and repair	▪ Customers may use a provider of choice to install and repair mobile unit equipment. ▪ ITS Wireless Services Vehicle Equipment experts are available to install and maintain mobile units per State Vehicle Equipment rates. ▪ Web page: http://its.utah.gov/productsservices/radioshop/index.html

ITS Responsibilities

ITS Responsibilities
Manage and maintain base station equipment.
Manage and maintain the Mobile Data Network Controller with redundant, failover capabilities.
Maintain and enhance the State Wide Area Network in support of the Mobile Data Network.
Manage and enhance State Communications Sites and Microwave system in support of the Mobile Data Network. Perform frequency searches and interference and propagation studies as necessary.
Work with the Mobile Data vendor to implement product roadmap upgrades and updates.
Assist user agencies with mobile unit purchase orders.
Set up registered mobile units in the Mobile Data Network Controller.
Maintain and enhance mobile unit configuration instructions.
Work with users in configuring mobile units for use on the Mobile Data Network.
Work with UWIN to meet users' Mobile Data Network needs.

Customer Responsibilities

Customer Responsibilities
Purchase mobile units.
Installation of mobile units in vehicles.
Configuration of mobile units per ITS instructions for operation on the Mobile Data Network.
Register mobile units with ITS for use on the Mobile Data Network.
Installation, user setup and maintenance of business applications on mobile laptops.
Selection of business applications designed for a mobile environment.
Implementation of business application level security as applicable.
Fund and manage the repair of mobile units as applicable.

Product Service Levels

Product Service Levels
ITS leverages the State's collective buying power to obtain the best possible level of service from contracted service providers related to Wide Area Network service in support of data communications.

ITS Customer Support

ITS Customer Support
Problem resolution is managed through industry best practices using a tiered support process.
Problem priority is based on importance of system affected, severity of system degradation, and number of affected users.
Problems can be submitted 24 x 7 via phone or Web. Report a problem: (801) 538-3440; (800) 678-3440; http://its.utah.gov/reportaproblem/reportaproblem.htm.
Web submissions are monitored during normal business hours (M-F 7:30 a.m. to 5:30 p.m.).
Response to submitted problems is two business hours for low and medium priorities, one clock hour for high priorities, and, thirty clock minutes for urgent priorities.

Response to problem submissions not resolved by the ITS Help Desk is within two business hours for low and medium priorities, one clock hour for high priorities, and, thirty clock minutes for urgent priorities.
Target problem resolution is two business days for low and medium priorities, eight business hours for high priorities, and two business hours for urgent priorities.
Resolution and escalation performance are measured regularly.
Customer satisfaction is measured regularly.
Outage reports are provided to communicate lessons learned and to explain future preventative measures.
*IP*MobileNet Technical Assistance Program in support of ITS product support.

System Components

The following information is provided to assist customers with purchasing mobile unit equipment. Customers are encouraged to work directly with ITS to ensure all appropriate equipment is obtained—to facilitate operational access to the Mobile Data Network.

System Components
Mobile radio units (Installation not included)
▪ M32700G25 with GPS wireless modem, 30 watt, less antenna – 33Kbps. *IP*MobileNet state contract AR1770: $1800.00.
Suggested - Mobile unit antenna equipment (installation not included)
▪ One - NM03E700B Radiall/Larsen 3.2db 5/8 wavelength antenna and roof/trunk mount Hutton state contract PD1587: $13.78.
▪ One - NMOKN cable, NMO mounting with type N crimp. Hutton state contract PD1587: $9.83.
▪ One – GPSCWNS (GPSCW3E7000) dual antenna 700 & GPS (700 with N and GPS with SMA connector). Hutton state contract PD1587: $52.21.
Suggested – Alternate mobile unit antenna equipment (installation not included)
▪ Two - NM03E700B Radiall/Larsen 3.2db 5/8 wavelength antenna with roof/trunk mount. Hutton state contract PD1587: $27.56.
▪ Two - NMOKN cable, NMO mounting with type N crimp. Hutton state contract PD1587: $19.66.
▪ One - GPSMN099 GPS antenna white for NMO mount, SMA connector Hutton state contract PD1587: $43.22.
Mobile laptop and mount equipment
▪ Laptop with DC power supply.
▪ Vehicle power adaptor.
▪ Laptop mount.
▪ Printer with printer cable.
▪ Console for radio, siren, etc.—as applicable.
▪ Electronic shotgun mount—as applicable.

▪ Miscellaneous mounting supplies.
▪ Equipment installation.
Pre-release purchase of data speed upgrades - *IP*MobileNet mobile units
▪ 64Kbps firmware upgrade: Add $250 to the *IP*MobileNet 33Kbps mobile price. Net price: $2050.
▪ 128Kbps firmware upgrade: Add $500 to the *IP*MobileNet 33Kbps mobile price. Net price: $2300.
Notes
1. *IP*MobileNet standalone (purchased later) data speed upgrade prices are the same—i.e., $250 for 33Kbps to 64Kbps upgrade, $500 for 33Kbps to 128Kbps upgrade, and $250 for 64Kbps to 128Kbps upgrade.
2. See product web site for *IP*MobileNet, Hutton, and State Purchasing contact information: http://its.utah.gov/productsservices/wirelessnetwork/wirelessdata/mobiledata.htm

Product Rate

Mobile Data Network Rate		
	Description	**Rate ($)**
Mobile Data Network Access	Monthly rate per mobile unit.	$15.00 per user per month
Packaged Mobile Equipment and Mobile Data Network Access	▪ Rate applies for 5 years, at which time equipment payment is complete. After such time continued service will switch to Monthly Access only. ▪ Equipment includes Mobile radio units, not laptop equipment.	$50.00 per user per month

Ordering the Product

To request development of a new geographic coverage area, contact the ITS Product Manager and/or the Department of Public Safety IT Director.

The register a mobile unit for use on the Mobile Data Network, users must complete and submit an on-line form. ITS will work closely with the mobile unit(s) are operating to the satisfaction of the customer. On-line form: http://its.utah.gov/productsservices/wirelessnetwork/wirelessdata/mobiledata.htm

Product Agreement

ITS and the Customer agree that this Product Description together with an approved Product Order Form constitute a binding agreement between both parties for the Product and related services required by the Customer. This Agreement remains in effect according to the terms specified in the Product Order Form, or until canceled by either party upon a thirty (30) day written notice.

Product and/or Service Rates listed are in accordance with the approved ITS Rate Schedules or Interim Rate Schedule. Therefore, the product description and order form replaces all other documentation, i.e., Contracts, Special Billing Agreements (SBA), Service Level Agreements (SLA), Memorandums of Understanding (MOU), etc.

To the extent that the terms set forth above conflict with an existing Contract, Special Billing Agreement (SBA), Service Level Agreements (SLA), Memorandums of Understanding (MOU), or other agreement between ITS and the customer, the parties acknowledge that the foregoing shall supercede the earlier agreement.